T08260 T6999660

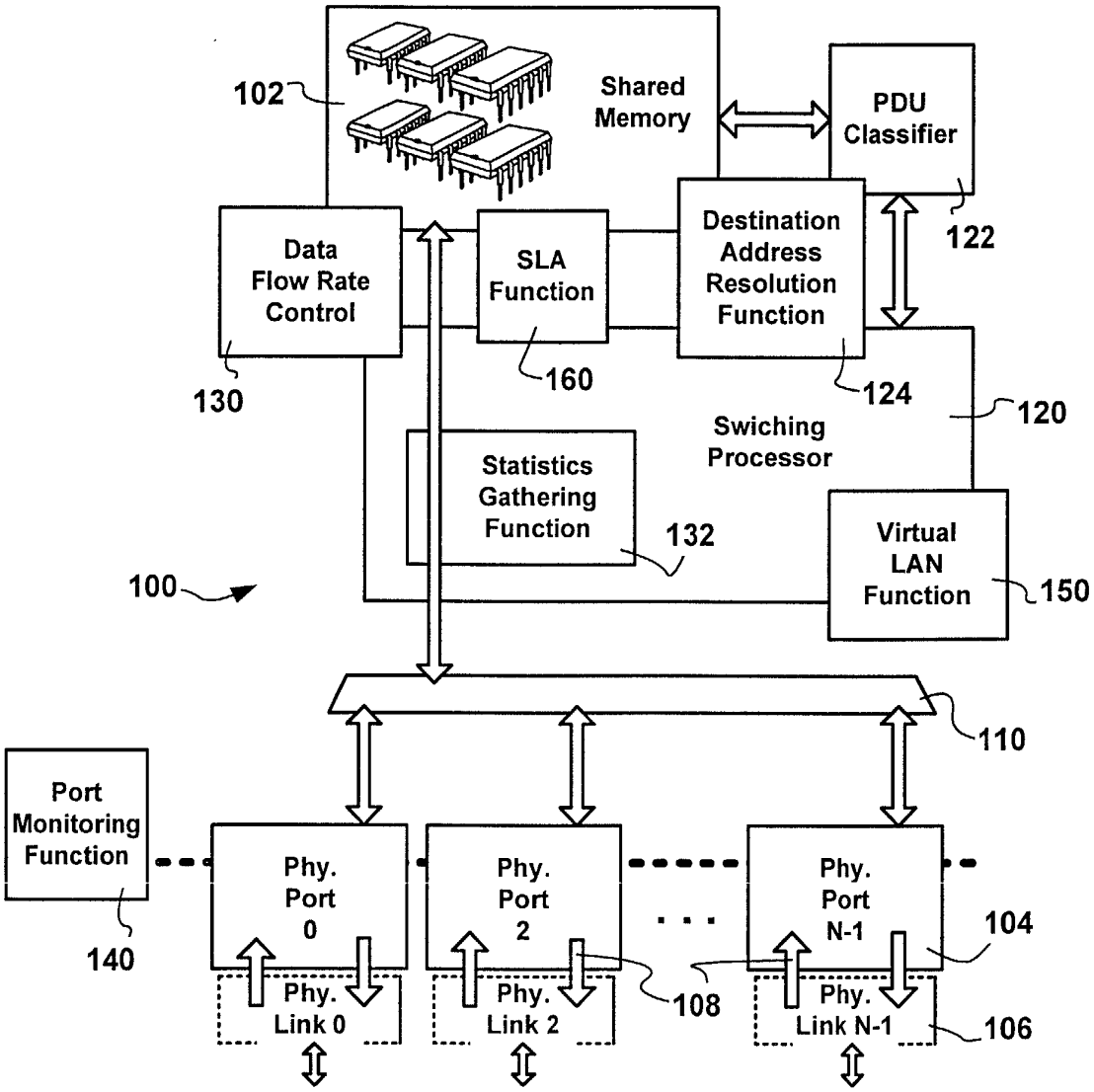

FIG. 1

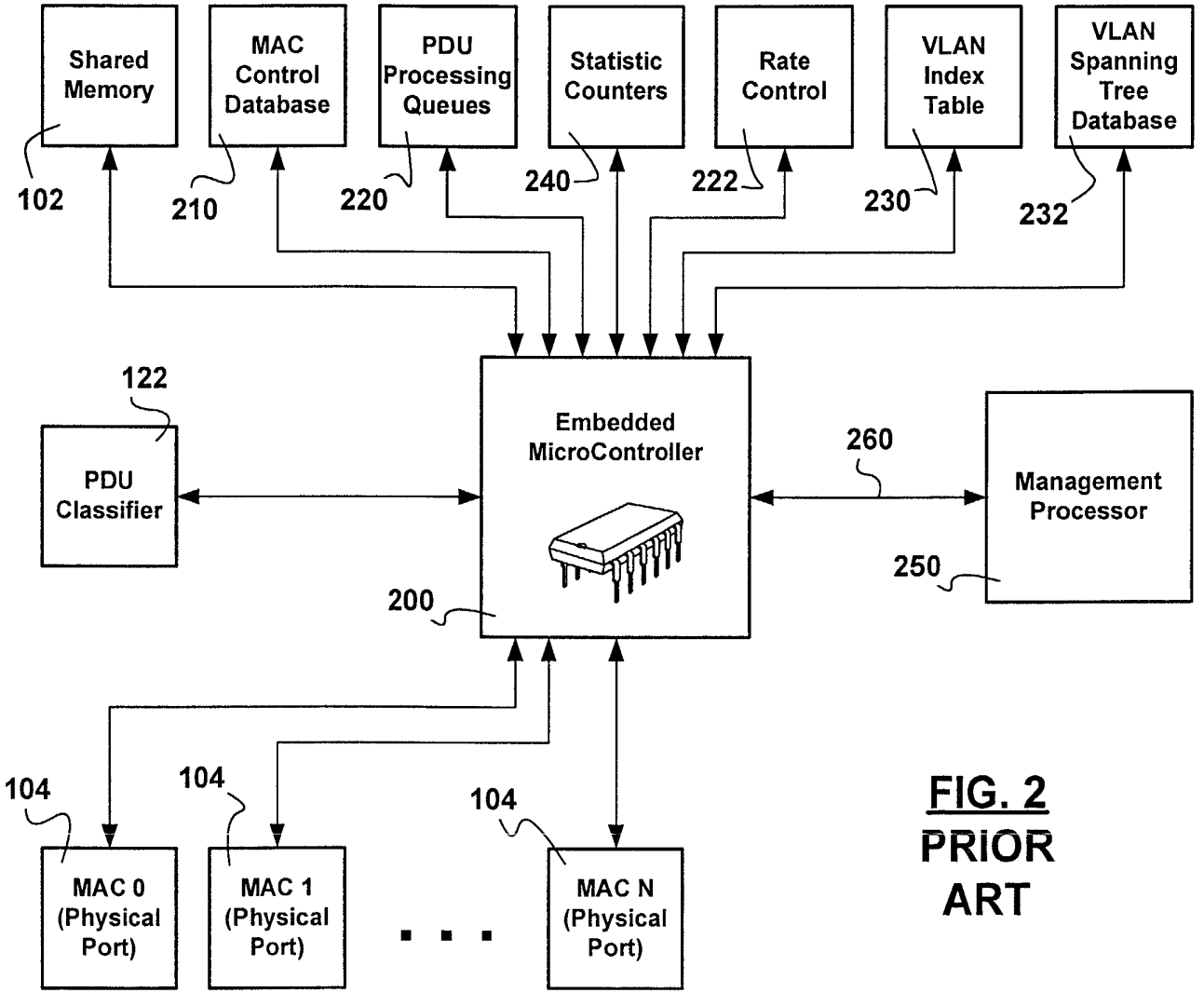

FIG. 2
PRIOR ART

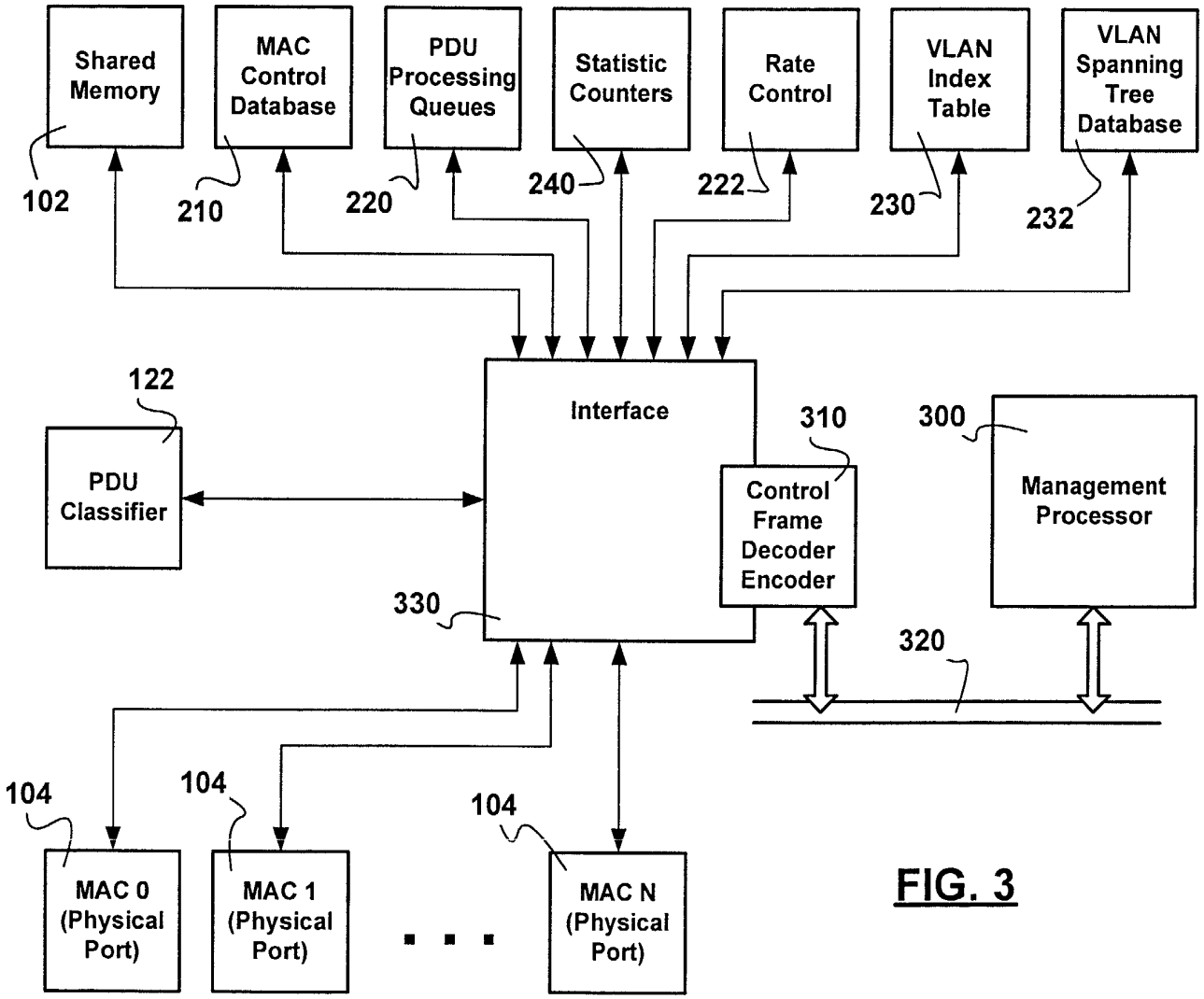
Shared Memory
MAC Control Database
PDU Processing Queues
Statistic Counters
Rate Control
VLAN Index Table
VLAN Spanning Tree Database
102
210
220
240
222
230
232
122
PDU Classifier
Interface
310
Control Frame Decoder Encoder
300
Management Processor
330
320
104
104
104
MAC 0 (Physical Port)
MAC 1 (Physical Port)
MAC N (Physical Port)

FIG. 3

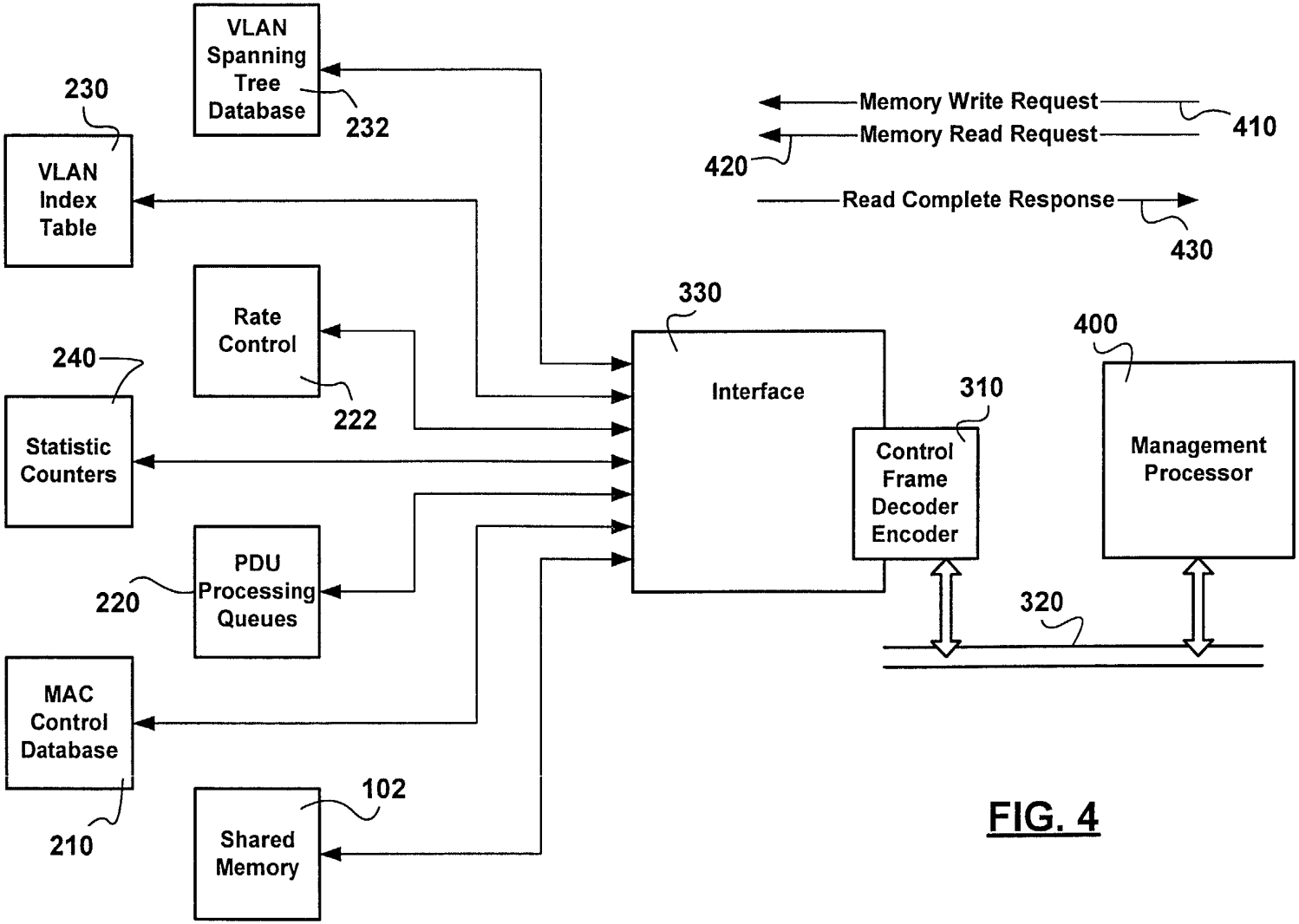
VLAN Spanning Tree Database
232
230
VLAN Index Table
Rate Control
222
240
Statistic Counters
PDU Processing Queues
220
MAC Control Database
210
Shared Memory
102
330
Interface
310
Control Frame Decoder Encoder
400
Management Processor
320
Memory Write Request
Memory Read Request
410
420
Read Complete Response
430

FIG. 4

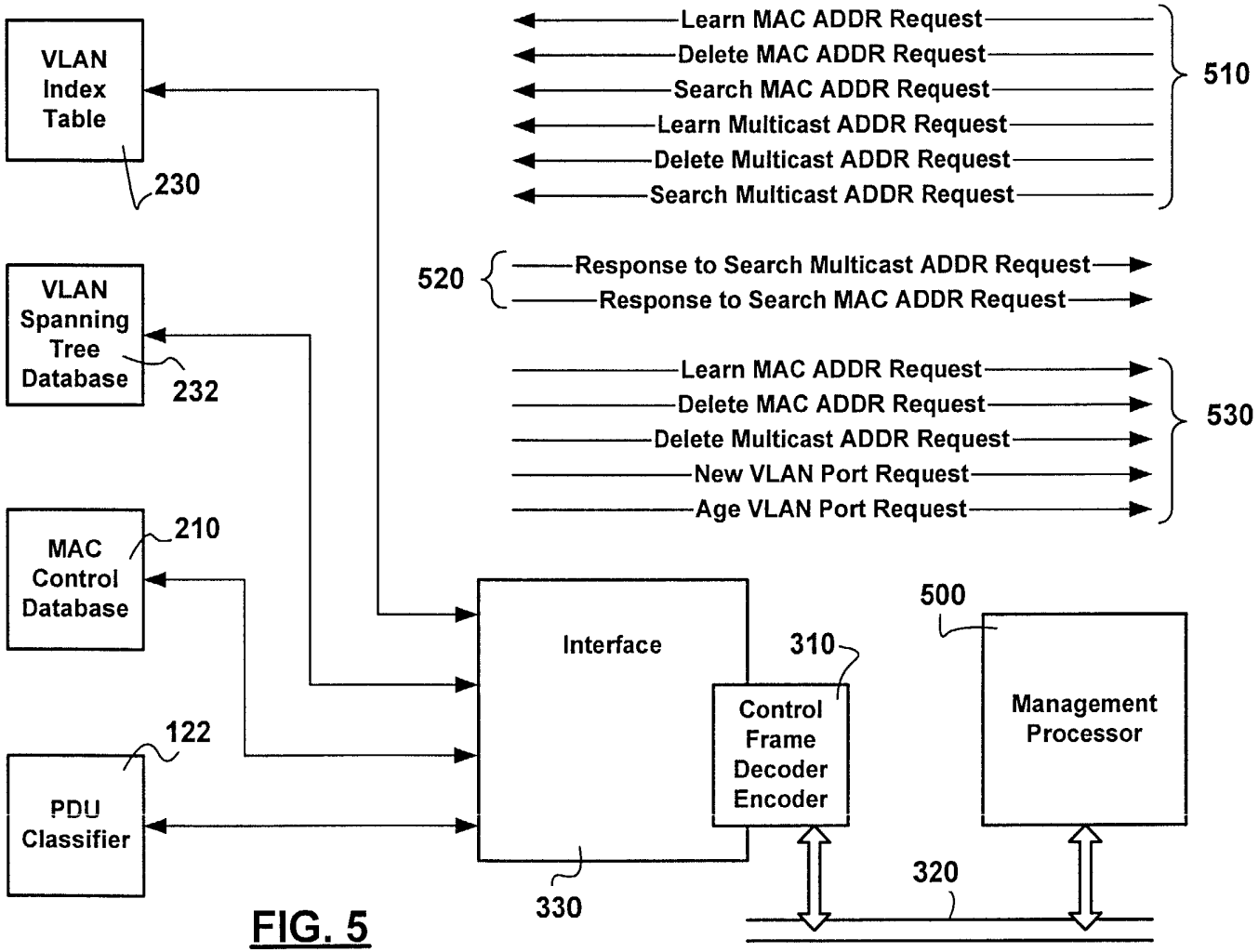
VLAN Index Table
230
VLAN Spanning Tree Database
232
MAC Control Database
210
PDU Classifier
122
Interface
310
Control Frame Decoder Encoder
330
500
Management Processor
320
Learn MAC ADDR Request
Delete MAC ADDR Request
Search MAC ADDR Request
Learn Multicast ADDR Request
Delete Multicast ADDR Request
Search Multicast ADDR Request
510
520
Response to Search Multicast ADDR Request
Response to Search MAC ADDR Request
Learn MAC ADDR Request
Delete MAC ADDR Request
Delete Multicast ADDR Request
New VLAN Port Request
Age VLAN Port Request
530

FIG. 5

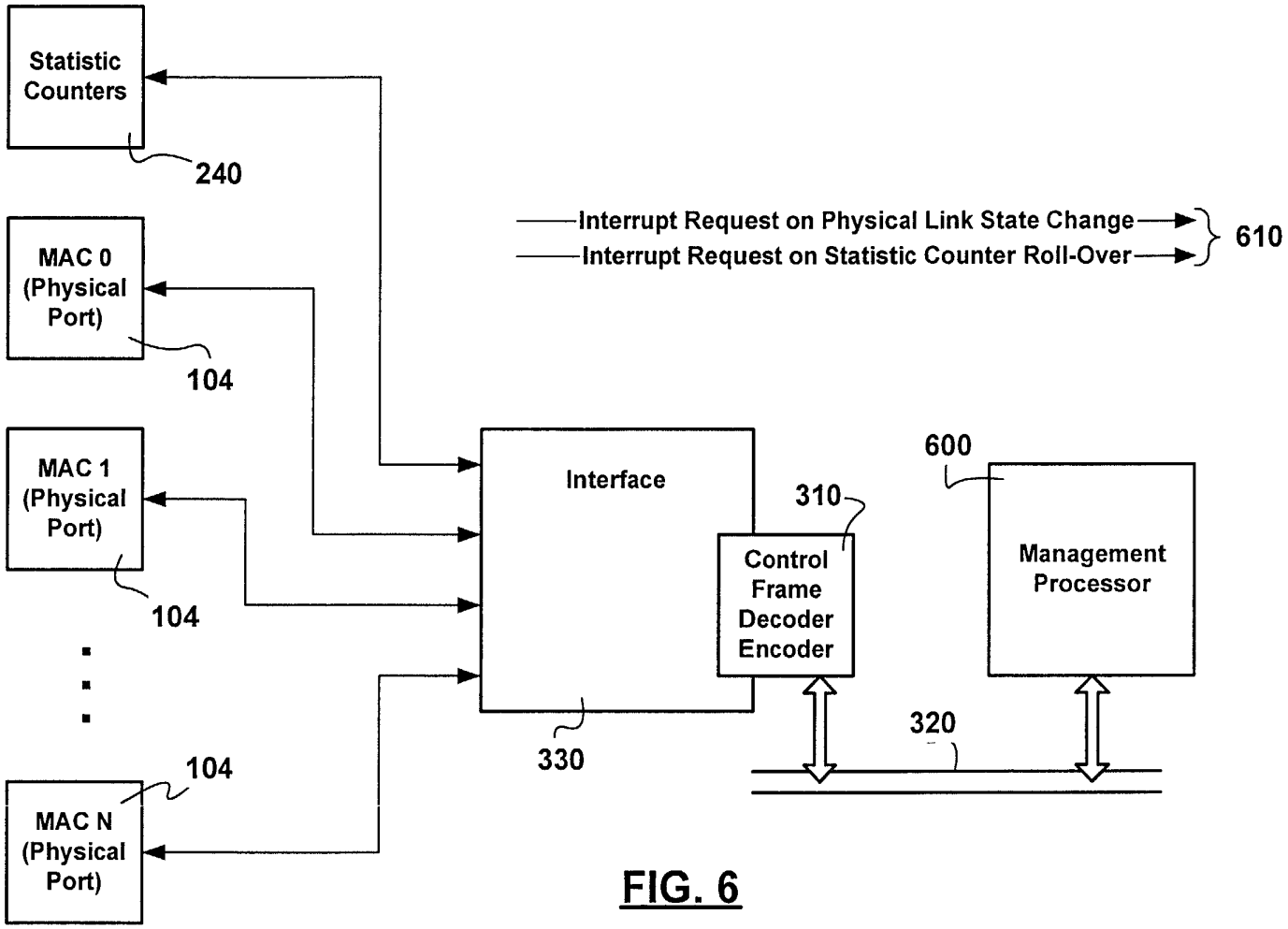
Statistic Counters
240
MAC 0 (Physical Port)
104
MAC 1 (Physical Port)
104
MAC N (Physical Port)
104
Interface
330
Control Frame Decoder Encoder
310
Management Processor
600
320
Interrupt Request on Physical Link State Change
Interrupt Request on Statistic Counter Roll-Over
610

FIG. 6

410

Memory Write Request Frame sent from Management Processor

	FRAME #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXXX0010
DATA 7	DATA 6	DATA 5	DATA 4	DATA 3	DATA 2	DATA 1	DATA 0
			▪ ▪ ▪				
DATA 31	DATA 30	DATA 29	DATA 28	DATA 27	DATA 26	DATA 25	DATA 24

420

Memory Read Request Frame sent from Management Processor

	FRAME #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXX0001
DATA 7	DATA 6	DATA 5	DATA 4	DATA 3	DATA 2	DATA 1	DATA 0
			▪ ▪ ▪				
DATA 31	DATA 30	DATA 29	DATA 28	DATA 27	DATA 26	DATA 25	DATA 24

430

Read Complete Response Frame with Data sent to Management Processor

	FRAME #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXXX0101
DATA 7	DATA 6	DATA 5	DATA 4	DATA 3	DATA 2	DATA 1	DATA 0
			▪ ▪ ▪				
DATA 31	DATA 30	DATA 29	DATA 28	DATA 27	DATA 26	DATA 25	DATA 24

FIG. 7

MAC ADDR Learn Request Frame sent from Management Processor

	FRAME #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXXX0100
PORT #	STAT	MAC 5	MAC 4	MAC 3	MAC 2	MAC 1	MAC 0
			▪ ▪ ▪				

MAC ADDR Delete Request Frame sent from Management Processor

	FRAME #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXXX0000
		MAC 5	MAC 4	MAC 3	MAC 2	MAC 1	MAC 0
			▪ ▪ ▪				

MAC ADDR Search Request Frame sent from Management Processor

	FRAME #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXXX0011
		MAC 5	MAC 4	MAC 3	MAC 2	MAC 1	MAC 0
			▪ ▪ ▪				

Learn Multicast ADDR Request Frame sent from Management Processor

	FRAME #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXXX1100
VLAN IDX		VLAN ID	VLAN ID	IP ADDR 3	IP ADDR 2	IP ADDR 1	IP ADDR 0
			▪ ▪ ▪				

Delete Multicast ADDR Request Frame sent from Management Processor

	FRAME #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXXX1000
		VLAN ID	VLAN ID	IP ADDR 3	IP ADDR 2	IP ADDR 1	IP ADDR 0
			▪ ▪ ▪				

510: Search Multicast ADDR Request Frame snet from Management Processor

	FRAME #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXXX1011
		VLAN ID	VLAN ID	IP ADDR 3	IP ADDR 2	IP ADDR 1	IP ADDR 0
			▪ ▪ ▪				

510

FIG. 8

Response Frame to MAC ADDR Search sent to Management Processor

RESULT	FRAME #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXXX1111
		MAC 5	MAC 4	MAC 3	MAC 2	MAC 1	MAC 0
				▪ ▪ ▪			

520

Response Frame to Multicast ADDR Search sent to Management Processor

RESULT	FRAME #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXXX1110
		VLAN ID	VLAN ID	IP ADDR 3	IP ADDR 2	IP ADDR 1	IP ADDR 0
				▪ ▪ ▪			

FIG. 9

610

Interrupt Request Frame on Counter Roll-Over sent to Management Processor

	PORT #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXXX0111
				INT 3	INT 2	INT 1	INT 0
				▪ ▪ ▪			

FIG. 11

Delete Multicast ADDR Request Frame sent to Management Processor

	FRAME #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXXX1101
		VLAN ID	VLAN ID	IP ADDR 3	IP ADDR 2	IP ADDR 1	IP ADDR 0
				▪ ▪ ▪			

530

Delete MAC ADDR Request Frame sent to Management Processor

	PORT #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXXX0000
		MAC 5	MAC 4	MAC 3	MAC 2	MAC 1	MAC 0
				▪ ▪ ▪			

Learn MAC ADDR Request Frame sent to Management Processor

	PORT #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXXX0100
	STAT	MAC 5	MAC 4	MAC 3	MAC 2	MAC 1	MAC 0
				▪ ▪ ▪			

New VLAN Port Request Frame sent to Management Processor

VLAN IDX	PORT #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXXX1010
				▪ ▪ ▪			

Age VLAN Port Request Frame to Management Processor

VLAN IDX	PORT #	SIZE	ADDR 2	ADDR 1	ADDR 0	CMD 1	XXXX1001
				AGED VLAN PORT			
				▪ ▪ ▪			

FIG. 10